

REMARKS

Status of the Claims

Claims 1-11, 16, 17, 19, and 21 are pending and under consideration in this application. All the pending claims stand rejected. After entry of the amendments made herein, claims 1-11, 16, 17, and 19 will be pending and under consideration in this application, claim 21 having been canceled. Claims 2 and 4 have been amended, purely in the interest of enhanced clarity, by the insertion of commas. No new matter has been added by any of the amendments made herein.

35 U.S.C. § 102(e) rejection

Claims 1-8, 11, 16, and 17 stand rejected as allegedly being anticipated by Naughton, U.S. Patent Application Publication No. 2002/0038152 A1. Applicant respectfully traverses this rejection.

Claim 1 (and claims dependent on it)

From the comments on page 2, lines 2-6, and page 3, lines 1-5, of the Office Action, Applicant understands the Examiner's position to be that Naughton discloses implantation into a patient of cultured cells derived from the patient and that it is unimportant whether these cells are alive. Applicant disagrees with this position.

The Naughton patent describes the preparation of extracellular matrix and the use of extracellular matrix for the repair of various defects. Extracellular matrix, as taught throughout the Naughton reference, is material made and secreted by cells. It is not and does not include the cells *per se*. Nowhere in Naughton is there a disclosure of implanting cells, dead or alive, in a subject. Indeed, the reference teaches that in preparing the extracellular matrix for its treatment methods, cells are killed and dead cells and any cellular debris are removed and discarded (e.g., paragraphs 0066 – 0069).

Claims 16 and 17

Applicant has incorporated the limitations of claim 21 into claim 16 and cancelled claim 21. Applicant notes that claim 21 was not rejected in the present Office Action in view of Naughton.

In light of the above considerations, Applicant respectfully requests that the rejection under 35 U.S.C. § 102(e) be withdrawn.

35 U.S.C. § 103(a) rejections

(a) Claims 1-4, 6-11, 16, 17, and 19 stand rejected as allegedly being unpatentable over Boss (U.S. Patent No. 5,591,444) in view of Daniels et al. (U.S. Patent No. 3,949,073). Applicant respectfully traverses the rejection.

From the comments on page 3, line 16, to page 4, line 6, of the Office Action, Applicant understands the Examiner's position to be that in view of Boss' disclosure of skin treatments with autologous fibroblasts and Daniels et al.'s recitation of "unilateral vocal cord paralysis" (column 4, lines 4-5) in a list of multiple conditions that can be treated with a collagen solution, one of ordinary skill in the art would have been motivated to carry out the methods of the instant claims. Applicant disagrees with this position.

Claim 1 (and claims dependent on it)

Applicant respectfully submits that neither reference contains the necessary motivation to persuade one of ordinary skill in the art to combine their respective disclosures and hence to treat vocal cord defects with autologous cultured cells. Moreover, neither reference provides the least assurance that any such a procedure would have been successful.

First, Boss discloses only the treatment of skin defects (e.g., column 3, lines 21-26). There is no teaching or even the slightest suggestion of using its method to treat any internal organ or tissue, let alone vocal cords. Applicant submits that it is an entirely different matter to inject living cells into an internal organ from injecting it into skin. Daniels et al. discloses treatment of a variety of conditions (including unilateral vocal cord paralysis) with a collagen

solution but provides not the least indication of how to treat vocal cords with a collagen solution, let alone with cultured cells. Applicant respectfully submits that those skilled in the art are cautious and concerned that any such invasive treatment be well-documented, safe, and efficacious and thus would not be persuaded by the minimal disclosure of the two references with respect to treatment of vocal cords with cultured autologous fibroblasts to perform such a procedure.

Moreover, the minimal teachings of the references in regard to the presently claimed method of treatment constitute at best a mere invitation to try without the least expectation of success. The courts have indicated that, in order to sustain a rejection for obviousness, there must be a reasonable expectation of success (see MPEP § 2143.02 for citations to relevant cases).

Claims 16 and 17

Claims 16 and 17 specify methods in which extracellular matrix is used to treat a vocal cord defect. Neither Boss nor Daniels et al. disclose, or even suggest the desirability of, using extracellular matrix for any treatment, let alone treating a vocal cord defect. Indeed, in Boss the only mention of extracellular matrix is to exclude it from the compositions it uses for treatment of skin defects (e.g., claim 5, step (b)). In that the cited references do not *in toto* teach every element of claim 16, they cannot render it or claim 17 (which is dependent on claim 16) obvious.

(b) Claims 9-10 stand rejected as allegedly being unpatentable over Naughton in view of Boss. Applicant respectfully traverses the rejection.

From the comments on page 4, lines 9-18, of the Office Action, Applicant understands the Examiner's position to be that it would have been obvious to one ordinary skill in the art to combine the teachings of Naughton and Boss and thus practice the invention as specified in claims 9 and 10. Applicant disagrees with this position.

As indicated above, Naughton discloses treatments with extracellular matrix only. Boss discloses treatments of skin defects with cultured autologous cells. Neither reference contains

any disclosure or even a suggestion that the methods they disclose be combined and hence that autologous cultured cells be used to treat vocal cord defects. Indeed, Naughton teaches killing and removal of dead cells and cell debris prior to use of its extracellular matrix-containing therapeutic compositions containing extracellular matrix (see above) for treatment of conditions such as "unilateral vocal cord paralysis" (paragraph 0074). For these reasons alone, neither reference renders claim 1, and hence also claims dependent on it (e.g., claims 9 and 10), obvious.

In addition, claim 9 requires that the autologous cells be engrafted together with a collagen or a modified collagen matrix (see claim 7 on which claim 9 depends). Thus, while Boss discloses that an "injectate can be placed in the obicularis musculature" (column 6, lines 27-28), it contains no disclosure or even a suggestion of engrafting cells with a collagen or a modified collagen matrix.

Moreover, with respect to claim 10, Boss only suggests that the cells be transported in a medium containing the subject's own medium. The description in Boss of the medium used for culturing merely indicates that serum, preferably fetal bovine serum, can be used for culturing (e.g., column 4, lines 58-60); there is no mention or suggestion in Boss of the use of the subject's own serum for the culturing step. That the inventors did not contemplate the use of the subject's own serum for the culturing of the fibroblasts is indicated by the language used to describe the medium used for transporting the fibroblasts ("The cells can be suspended in an equal volume of complete medium, except for . . . the replacement of the fetal bovine serum by the subject's serum for such transportation (transport medium)"; column 5, lines 26-30).

Thus, in view of all the above considerations, neither claim 9 nor claim 10 is rendered obvious by Naughton in view of Boss.

In light of the above factors, Applicant respectfully requests that the rejections under 35 U.S.C. § 103(a) be withdrawn.

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CONCLUSION

In summary, for the reasons set forth above, Applicant maintains that all of the pending claims patentably define the invention. Applicant requests that the Examiner reconsider the rejections as set forth in the Office Action and permit the pending claims to pass to allowance.

If the Examiner would like to discuss any of the issues raised in the Office Action, Applicant's undersigned representative can be reached at the telephone number listed below.

Enclosed is a petition for an automatic extension of time and check in payment of the extension of time. Please apply any additional charges or credits to Deposit Account No. 06-1050, referencing Attorney Docket No. 15092-022002.

Respectfully submitted,

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